**Math 211: Ordinary Differential Equations**
Section 002 / Spring Semester 2013

**Contact info:** cell:(408) 887 - 9651, email: ach3@rice.edu
**Class room, dates, and times:** GRB W212, MWF 11:00 am - 11:50 am, Jan $7^{th}$ - Apr $19^{th}$
**Textbook:** Differential Equations, $2^{nd}$ ed., by Polking, Boggess and Arnold
**Office Hour location and time:** HBH 36, TF hours TBD by democracy after the first week
**Course website:** http://math.rice.edu/∼ach3/teaching/m211sp13.html

**Course outline:** In this course, you will be introduced to first- and second- order ordinary differential equations and some techniques to solve a large class of them. We will begin by classifying ODEs and then learn to recognize which methods of attack are suitable for solving them.

More specifically, up to the first midterm, you will see some archetypes of first-order ordinary differential equations - separable, linear, and exact - and solve them in the general case. You will also develop qualitative techniques to get a feeling for the behavior of solutions to such ODE. After this, we move on to a treatment of linear algebra in which you will see: vector spaces, matrices and their eigenvalues, eigenvectors, rank, nullspace, and generalized eigenspaces. You will be tested on this on your second midterm.

Finally, we will apply the linear algebra to solve second-order ordinary differential equations when you've seen the prerequisite linear algebra. You are expected to be familiar with material from Math 101 and Math 102 - in particular, you should be comfortable working with the derivatives and anti-derivatives of simple functions using the chain rule/integration by parts. This course will cover chapters 2, 4, 7, 8, and 9 of the textbook. A more detailed table of contents for this course is available on the course website. It's pretty lengthy, noting what each lecture aims to accomplish.

**Grading**: Grades will be broken down as follows:

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| Homeworks | 30% |
| Exam I (on Tuesday, Feb $12^{th}$) | 20% |
| Exam II (on Tuesday, Mar $26^{th}$) | 20% |
| Final Exam (date TBD) | 30% |

**Exams**: There will be two exams, at the beginning of the $6^{th}$ and $11^{th}$ weeks, and a final exam. If you *must* miss an exam, please let me know as soon as possible before the exam date so that we can schedule an alternative exam/date for you. Realize that you should only request such a rescheduling when it is reasonable by university policy (i.e., for a medical condition, family emergency, etc.)

**Homework policy**: A handful of problems will be assigned after *each* lecture to be due *the following Wednesday.* Late homework will be accepted up to a day late with a 50% penalty. Homework assignments are not pledged - you are encouraged to discuss these problems with your peers, but the final write-up must be your own.

**Disability Support**: It is the policy of Rice University that any student with a disability receive fair and equal treatment in this course. If you have a documented disability that requires academic adjustments or accommodation, please speak with me during the first week of class. All discussions will remain confidential. Students with disabilities will also need to contact Disability Support Services in the Ley Student Center.